

Message Text

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FM SECSTATE WASHDC

TO AMEMBASSY WELLINGTON

INFO SECDEF

DEFENSE MAPPING AGENCY WASHD

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E.O. 11652: N/A

TAGS: MARR, OTRA, TSPA, NZ

SUBJECT: GEOS-3 SATELLITE RESEARCH PROGRAM

REFS: (A) WELLINGTON 1741

(B) STATE 144449

1. THE FOLLOWING ADDITIONAL INFORMATION HAS BEEN PROVIDED BY THE DEFENSE MAPPING AGENCY IN RESPONSE TO QUESTIONS REF A. THE PURPOSE OF THE NASA GEOS-3 PROJECT IS TO PERFORM EXPERIMENTS IN SUPPORT OF THE APPLICATION OF GEODETIC SATELLITE TECHNIQUES TO GEOSCIENCES, (I.E. SOLID EARTH PHYSICS AND OCEANOGRAPHY) AS FOLLOWS:

A. DEMONSTRATE THE UTILITY OF SATELLITE BORNE ALTIMETERS FOR MEASURING THE GEOMETRY OF THE OCEAN SURFACE.

B. CONTRIBUTE TO THE CALIBRATION, DATA ACCURACY DETERMINATION, AND IMPROVEMENT OF GROUND BASED AND SATELLITE BORNE TRACKING SYSTEMS.

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C. COMPARE AND CORRELATE RESULTS OBTAINED AND MAKE AVAILABLE BOTH THE OBSERVATIONAL DATA AND RESULTS OF ANALYSIS. SHOULD SATELLITE-BORNE ALTIMETERS PROVE FEASIBLE, OPERATIONAL DATA HAS WIDE USES FOR DETERMINING

OCEAN CURRENTS, WAVE HEIGHTS, GENERAL SEA LEVEL CONDITIONS IN CONTINUING EFFORT TO IMPROVE SAFETY OF NAVIGATION AT SEA.

2. SOME 41 INVESTIGATORS OR INVESTIGATING TEAMS HAVE BEEN SELECTED BY NASA TO ANALYZE THE DATA OBTAINED BY GEOS-3. THESE TEAMS WERE SELECTED FROM GOVERNMENT (U.S. AND FOREIGN), UNIVERSITY AND INDUSTRIAL ORGANIZATIONS BASED ON PROPOSALS SUBMITTED IN RESPONSE TO A CALL FOR SPACE FLIGHT DATA INVESTIGATIONS ISSUED IN OCTOBER 1972.

3. THE ORBIT OF GEOS-3 MUST BE ACCURATELY KNOWN SO THAT THE HEIGHT ABOVE SEA LEVEL MEASURED BY THE ALTIMETER CAN BE ACCURATELY CALIBRATED. TO DO THIS, GEOS-3 IS BEING TRACKED FROM THE GROUND BY LASER, RADIO DOPPLER, C-BAND RADAR AND S-BAND RADAR AS WELL AS BY THE APPLICATIONS TECHNOLOGY SATELLITE-6 (ATS-6). TO THIS END, THE DOD HAS AGREED TO EXPAND ITS DOPPLER TRACKING NETWORK TO INSURE PRECISION ORBITS IN THE SOUTHERN HEMISPHERE. THE PROPOSED TRACKING SITE IN NEW ZEALAND IS A PART OF THIS EFFORT.

4. SINCE THE GEOS-3 SATELLITE DOES NOT HAVE A MEMORY CAPABILITY PERMITTING SUBSEQUENT TRANSMISSION OF DATA, THE RADAR ALTIMETRY DATA MUST BE RECEIVED IN REAL TIME AT GROUND STATIONS LOCATED THROUGHOUT THE WORLD. AS A PART OF THE DOD CONTRIBUTION TO THE NASA TELEMETRY EFFORT WORLDWIDE, DOD, AS THE ONLY AGENCY WITH THE CAPABILITY, WILL DEPLOY PORTABLE TELEMETRY EQUIPMENT TO AREAS NOT COVERED BY NASA GROUND STATIONS. NASA TELEMETRY DOES NOT COVER THE OCEAN SURROUNDING NEW ZEALAND. ACCORDINGLY, DOD IS REQUESTING ACCESS TO THE TERRITORY OF NEW ZEALAND TO TAKE THESE TELEMETRY DATA TO OBTAIN AREA COVERAGE.

5. THE DOPPLER TRACKING AND TELEMETRY EQUIPMENTS OPERATE UNCLASSIFIED

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IN A COMPLETELY PASSIVE MODE. THE DOPPLER EQUIPMENT LISTENS TO A PRECISE OSCILLATOR SIGNAL FROM THE GEOS-3 SATELLITE AND COMPARES IT AGAINST AN INTERNAL OSCILLATOR OF THE SAME FREQUENCY AS THE SATELLITE BORNE OSCILLATOR. THE DIFFERENCE IN FREQUENCY REPRESENTS THE DOPPLER SHIFT WHICH IS RECORDED ON PAPER TAPE AND TRANSMITTED TO THE APPLIED PHYSICS LABORATORY (APL) OF JOHNS HOPKINS UNIVERSITY. AT APL THESE DATA WILL BE COMBINED WITH

DATA FROM AS MANY AS 40 DOPPLER TRACKING STATIONS LOCATED IN 18 DIFFERENT COUNTRIES TO PRODUCE PRECISE EPHEMERIDES (POSITION COORDINATES) OF THE GEOS-3 SATELLITE. THE TELEMETRY EQUIPMENT WILL OPERATE ONLY FOR SCHEDULED PASSES OF THE GEOS-3 SATELLITE WHEN IT IS OVER THE OCEAN AREAS SURROUNDING NEW ZEALAND.

6. EMBASSY IS REQUESTED TO CONTACT SURVEYOR GENERAL IAN STIRLING, WHO IS AWARE OF THIS PROGRAM AND HAS INDICATED HIS SUPPORT IN INFORMAL CONTACTS WITH THE DEFENSE MAPPING AGENCY. HIS OFFICE TELEPHONE IS 49800 X429.

7. LOCATION OF STATION AT INVERCARGILL NOT CRITICAL, BUT A SUITABLE NEW ZEALAND LOCATION, (I.E. CHRISTCHURCH) IS ESSENTIAL FOR SATISFACTORY COMPLETION OF SATELLITE RESEARCH MISSION. INVERCARGILL WAS SELECTED ONLY BECAUSE IT WAS A SITE USED FOR THE NASA PAGEOS PROGRAM (1965-70) AND WAS USED BY A U.S. TEAM WITH A BC-4 TRACKING CAMERA. HOWEVER, CHRISTCHURCH WOULD PROVIDE BETTER LOGISTIC ENVIRONMENT. IN EITHER CASE, DEFENSE MAPPING AGENCY CAN ACCOMPLISH SITE PREPARATION. SURVEY REQUIRES ONE MAN, WHILE SITE PREPARATION CAN BE ACCOMPLISHED WITH THREE. NEW ZEALAND PARTICIPATION ON COOPERATIVE BASIS WOULD BE WELCOMED.

8. DETAILED PRESS KIT ON GEOS-3 HAS BEEN SENT UNDER SEPARATE COVER. KISSINGER

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